

PATENT CLAIMS (as originally filed and published)

1. A cryostorage device (100) comprising at least one data storage device (200) and at least one sample receptacle device (300) with at least one sample chamber (301, 302, etc) for the uptake of a suspension sample, the at least one sample chamber (301, 302, etc.) being connected to the data storage device (200) and having a long-stretched, hollow shape that extends from an inlet end (320) over a predetermined length to an outlet end (330), characterized in that the at least one sample chamber (301, 302, etc.) is attached to the at least one data storage device (200) in a flexible and movably hanging manner.
2. The cryostorage device according to claim 1, wherein the at least one sample chamber (301, 302, etc.) has the form of a hollow cylinder, hollow cone, pipe, tube, or a hollow needle.
3. The cryostorage device according to any of the preceding claims, wherein the at least one sample chamber (301, 302, etc.) consists of a flexible, bendable material.
4. The cryostorage device according to any of the preceding claims, wherein the at least one sample chamber (301, 302, etc.) is provided with a sensor, in particular a temperature sensor, and/or cooling surfaces.
5. The cryostorage device according to any of the preceding claims, wherein the data storage device (200) comprises at least one data storage (210) with a housing (310), with which the sample receptacle device (300) is connected.
6. The cryostorage device according to claim 5, wherein the data storage device (200) comprises a multiplicity of data storages (210, 220, 230, 240) that are attached along the length of the at least one sample chamber (301, 302, etc.).

7. The cryostorage device according to any of the preceding claims, wherein the cross-sectional dimension of the at least one sample chamber (301) varies along its length, so that at least one sub-chamber (350) with a cross-sectional dimension that is larger than the cross-sectional dimensions of the inlet and outlet openings (320, 330) is formed.
8. The cryostorage device according to any of the preceding claims, wherein the sample receptacle device (300) comprises a plurality of sample chambers (301, 302, etc.) that are connected with one another at their exterior walls, so that an integral, flexible sample chamber block (340) is formed.
9. The cryostorage device according to any of the preceding claims, wherein a labeling device (600) is provided that comprises a labeling layer (610) on data storage device (200) and/or labeling elements (620) that are placed on the sample receptacle device (300).
10. The cryostorage device according to any of the preceding claims, wherein an attachment device (550) is provided, with which the at least one sample chamber (301, 302, etc.) is attached to the data storage device (200).
11. The cryostorage device according to claim 12, wherein the attachment device (550) comprises strips that are arranged individually or as a bundle, each with a sample chamber attached to one end and the other end attached to the data storage device (200).
12. A method for the storage of at least one suspension sample in a low-temperature state, comprising the steps:
 - uptake of the at least one suspension sample in at least one sample chamber (301, 302, etc.) of a cryostorage device (100) according to any of the preceding claims, and

- transfer of the suspension sample into a low-temperature state by positioning at least a part of the cryostorage device in a cryo-medium.

13. The method according to claim 12, wherein the uptake of the at least one suspension sample in the at least one sample chamber occurs by dipping the at least one sample chamber (301, 302, etc.) with an inlet end (320) in a sample reservoir (700) and transfer of the suspension sample as a result of a reduced pressure applied at the corresponding outlet end (330) or of capillary forces.
14. The method according to claim 12 or 13, wherein data that comprise the identification of the at least one suspension sample, measured data that were obtained from the suspension sample, reference data of reference samples, and/or behavior data about properties of the suspension sample over the course of the storage in the low-temperature state are stored in the data storage device (200).
15. The method according to any of the claims 12 to 14, wherein at least one partial sample is detached from the at least one sample chamber (301, 302, etc.) in the low-temperature state by mechanical separation.
16. The method according to claim 15, wherein during the mechanical separation a local heating of the respective sample chamber in the vicinity of the partial sample that is to be separated or a separation at the attachment device (500) occurs.
17. The method according to any of the claims 12 to 15, wherein inlet and/or outlet ends (320, 330) of the at least one sample chamber (301, 302, etc.) are sealed by clamping, plugging, sealing, or a part of the suspension sample.